PATENT COOPERATION TREA

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION** see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
PHN 17.551WO		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/EP 00/ 06619	12/07/2000	15/07/1999
Applicant		
KONINKLIJKE PHILIPS ELECTRONICS N.V.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

INTERNATIONAL SEARCH REPORT

[redacted] International Application No
[redacted] PCT/EP 00/06619

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G11B20/18 G11B7/09

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 11, 26 December 1995 (1995-12-26) & JP 07 201042 A (NIPPON COLUMBIA CO LTD), 4 August 1995 (1995-08-04) abstract ---	1-3, 13-15,17
X	US 4 730 290 A (TAKASAGO MASAHIRO ET AL) 8 March 1988 (1988-03-08) abstract; figure 3 column 2, line 28 - line 53 column 3, line 28 - line 60 column 5, line 47 -column 7, line 19 --- -/--	1-3, 13-15,17

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 December 2000	29/12/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schiwy-Rausch, G

1

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 0 397 126 A (MITSUBISHI ELECTRIC CORP) 14 November 1990 (1990-11-14) column 1, line 25 - line 34 column 3, line 41 -column 5, line 29 column 6, line 33 -column 7, line 22 column 8, line 14 -column 10, line 28 column 11, line 22 - line 41 figures 1,2,6,7	1,17 5,13
Y	PATENT ABSTRACTS OF JAPAN vol. 014, no. 465 (P-1114), 9 October 1990 (1990-10-09) & JP 02 184745 A (CANON INC), 19 July 1990 (1990-07-19) abstract	1-3, 13-15,17
Y	EP 0 606 499 A (SONY CORP.) 20 July 1994 (1994-07-20) column 1, line 28 -column 3, line 31 column 8, line 29 -column 9, line 57 figures 4-6	1-3, 13-15,17
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 315 (P-1755), 15 June 1994 (1994-06-15) & JP 06 068502 A (NIKON CORP), 11 March 1994 (1994-03-11) abstract	1,2,13, 14,17
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 519 (P-1807), 29 September 1994 (1994-09-29) & JP 06 176390 A (YAMAHA CORP), 24 June 1994 (1994-06-24) abstract	1,2,13, 14
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 184 (P-1719), 29 March 1994 (1994-03-29) & JP 05 342638 A (MITSUBISHI ELECTRIC CORP), 24 December 1993 (1993-12-24) abstract	1-3,5
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 552 (P-1815), 20 October 1994 (1994-10-20) & JP 06 195718 A (CANON INC), 15 July 1994 (1994-07-15) abstract	

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 10, 31 October 1996 (1996-10-31) & JP 08 147739 A (SANYO ELECTRIC CO LTD), 7 June 1996 (1996-06-07) abstract	
A	US 4 406 000 A (SHOJI ROBERT M ET AL) 20 September 1983 (1983-09-20)	

INTERNATIONAL SEARCH REPORT

[redacted]ormation on patent family members

[redacted]ternational Application No
PCT/EP 00/06619

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 07201042 A	04-08-1995	NONE	
US 4730290 A	08-03-1988	JP 2012923 C	02-02-1996
		JP 7040363 B	01-05-1995
		JP 61216129 A	25-09-1986
EP 0397126 A	14-11-1990	DE 69024255 D	01-02-1996
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		US 5212677 A	18-05-1993
		JP 2531293 B	04-09-1996
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JP 02184745 A	19-07-1990	NONE	
EP 0606499 A	20-07-1994	US 5553045 A	03-09-1996
		US 6058085 A	02-05-2000
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JP 06068502 A	11-03-1994	NONE	
JP 06176390 A	24-06-1994	NONE	
JP 05342638 A	24-12-1993	NONE	
JP 06195718 A	15-07-1994	NONE	
JP 08147739 A	07-06-1996	NONE	
US 4406000 A	20-09-1983	AT 14639 T	15-08-1985
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1. A method of examining a record carrier for the presence of a defect; comprising

following a track to be examined and monitoring the resulting tracking signal; and

rating the examined recording track on the basis of characteristics of the resulting tracking signal.

2. A method as claimed in Claim 1, wherein the examined recording track is rated as being defective if the absolute value of the tracking signal has a value which exceeds a predetermined signal threshold for a predetermined period of time or longer.

3. A method as claimed in Claim 2, wherein the tracking signal has a nominal signal value of zero which corresponds to the center of a track, and has a maximum value which corresponds to a maximum lateral deviation with respect to the center of a track, and wherein a level of a preselected fraction of said maximum value is chosen as the predetermined signal threshold.

4. A method as claimed in Claim 2, wherein said predetermined period of time lies in a range from approximately 50 μs to approximately 75 μs.

5. A method of examining as in Claim 1 wherein the a record carrier (1) is examined for the presence of spot defects, the method comprising

a) examining the integrity of predetermined test tracks of the record carrier

b) examining the integrity of tracks adjacent the relevant test track each time that upon the examination a test track appears to be defective, in order to determine in this way the number of tracks affected by the same spot defect;

c) entering the relevant tracks in a defect list each time that the number thus determined in the step (b) is greater than a predetermined threshold value;

d) storing the defect list in a memory.

6. A method as Claimed in Claim 5, wherein a predetermined number of tracks between successive test tracks is skipped.

7. A method as claimed in Claim 5, wherein the defect list is recorded on the examined record carrier.

8. A method of recording information on a record carrier of the type having a multitude of concentric substantially circular recording tracks, particularly a DVR disc, the method comprising:

- first providing, in an examination phase, a defect list of tracks affected by a comparatively large spot defect by means of a method as claimed in Claim 6;

- subsequently recording information on the disc in a recording phase while reference is made to said defect list, the recording tracks included in said defect list being skipped in the recording process.

9. A method of examining of Claim 1 wherein the record carrier (1) is examined for the presence of spot defects, comprising the following steps:

a) examining the integrity of predetermined test tracks of the record carrier;

b) entering the relevant tracks in a primary defect list each time that upon the examination of a test track it appears to be defective, and, optionally, entering tracks situated in a suspect area at opposite sides of the relevant test track in an alarm list;

c) storing the primary defect list and, if applicable, the alarm list in a memory.

10. A method as claimed in Claim 9, wherein a predetermined number of tracks between successive test tracks is skipped, and wherein each suspect area always extends from the relevant test track to the directly preceding and the directly following test track, respectively.

11. A method of recording information on a record carrier of the type having a multitude of concentric substantially circular recording tracks, particularly a DVR disc, the method comprising:

- first providing, in a primary examination phase, a primary defect list of test tracks having a defect and, optionally, an alarm list of tracks situated in a suspect area at opposite sides of the relevant test tracks, by means of a method as claimed in Claim 10;

- subsequently recording information on the disc in a recording phase while reference is made to said primary defect list and said optional alarm list, the recording tracks included in said primary defect list as well as the tracks situated in a suspect area at opposite sides of the relevant test tracks being skipped in the recording process;

- subsequently examining the integrity of the tracks in said suspect areas in a secondary examination phase, in order to determine in this way the number of tracks affected by the same spot defect;

- entering the relevant tracks in a secondary defect list each time that the number thus determined is greater than a predetermined threshold value.

12. A method as claimed in Claim 11, wherein the secondary defect list is recorded on the examined record carrier.

13. A method of recording information on a record carrier (1), comprising:

monitoring a recording track and based on the resulting tracking signal, determining whether the recording process is to be continued or discontinued.

14. A method as claimed in Claim 13, wherein the recording process is discontinued if the absolute value of the tracking signal appears to have a value which exceeds a predetermined signal threshold for a predetermined period of time or longer.

15. A method as claimed in Claim 14, wherein the tracking signal has a nominal signal value of zero which corresponds to the center of a track, and has a maximum value which corresponds to a maximum lateral deviation with respect to the center of a track, and wherein a level of a preselected fraction of said maximum value is adopted as signal threshold.

16. A method as claimed in Claim 15, wherein said predetermined period of time lies in a range from approximately 50 μs to approximately 75μs.

17. A recording device suitable for the recording of information, particularly real time video or audio, on a record carrier of the type comprising a multitude of concentric substantially circular recording tracks, particularly an optical disc, which recording device comprises:

- a control unit;
- a write/read unit adapted to aim a laser beam at a track of a record carrier under control of the control unit and to receive laser light reflected from the disc, and further adapted to supply a tracking signal to the control unit, which tracking signal has been determined on the basis of the reflected laser light;
- wherein the control unit is adapted to carry out the method as claimed in Claim 16.

18. A method as claimed in Claim 2, wherein the tracking signal has a nominal signal value of zero which corresponds to the center of a track, and has a maximum value which corresponds to a maximum lateral deviation with respect to the center of a track, and wherein a level of a preselected fraction of said maximum value is chosen as the predetermined signal threshold is equal to approximately 0.5.

19. A method as claimed in Claim 2, wherein said predetermined period of time is approximately 60 μs.

20. A method as claimed in Claim 5, wherein approximately 50 tracks between successive test tracks are skipped.

21. A method as claimed in Claim 14, wherein the tracking signal has a nominal signal value of zero which corresponds to the center of a track, and has a maximum value which corresponds to a maximum lateral deviation with respect to the center of a track, and wherein a level of a preselected fraction of said maximum value is adopted as signal threshold, which preselected fraction is approximately 2/3.

22. A method as claimed in Claim 15, wherein said predetermined period of time is approximately 60 μs.